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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,482	03/12/2004	Akira Takahashi	OKI 414	6303

7590
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Suite 500
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02/08/2007

EXAMINER

KRAIG, WILLIAM F

ART UNIT	PAPER NUMBER
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2815

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/798,482	Applicant(s) TAKAHASHI, AKIRA	
	Examiner William Kraig	Art Unit 2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3,5,11 and 13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3,5,11 and 13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The Applicant's cancellation of claims 1, 2, 4, 8-10 and 12 is acknowledged.

Claim Objections

2. Claim 3 is objected to because of the following informalities: The word "silicon" on the last line of the claim should be --polysilicon--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 3, 5, 11 and 13 are rejected under 35 U.S.C. 103(a) as being anticipated by Gabriel et al. (U.S. Patent # 6541359) in view of Lee et al. (U.S. Patent # 5665203).

Regarding claims 3 and 5, Gabriel et al. discloses a dry etching method (Gabriel et al., Col. 1, Lines 34-38) for a semiconductor device, comprising the following steps of:

simultaneously gate-etching (Gabriel et al., Col. 7, Lines 6-9) an N type polysilicon gate electrode (Gabriel et al., Fig. 5A (540, 550)), a P type polysilicon gate electrode (Gabriel et al., Fig. 5A (540, 550)) (Gabriel et al., Col. 6, Line 62 – Col. 7, Line 9), and a non-doped polysilicon body (Col. 7, Lines 1-9) during an

Art Unit: 2815

etching process including a stage using a mixed gas of HBr and O₂ (Col. 1, Lines 63-65); and

setting an etching area (Col. 7, Lines 6-9) occupied by the non-doped polysilicon body (see Fig. 5A), which is adjacent to at least one of the N type polysilicon gate electrode and the P type polysilicon gate electrode (see Fig. 5A), larger than a total area of the N type polysilicon gate electrode and the P type polysilicon gate electrode (Col. 7, Lines 1-9).

wherein an end point detection of one of the stages of the etching process is based on the etching of the non-doped polysilicon body (Col. 7, Lines 6-9).

Gabriel et al., however, fails to disclose the etching process being a two step etching process wherein a second stage of the etch uses a mixed gas of HBr, O₂, and He.

Lee et al. teaches a similar method wherein the gate etching process is a two-step process which uses a first stage atmosphere of HBr, Cl₂ and He and a second stage atmosphere of HBr, O₂ and He (Lee et al., Col. 2, lines 39-41).

It would have been obvious to one of ordinary skill in the art to incorporate the method of Lee et al. into the method of Gabriel et al. The ordinary artisan would have been motivated to modify Gabriel et al. in the above manner for the purpose of forming perfectly vertical gate sidewalls (Lee et al. Col. 2, Lines 23-28).

Regarding claim 11, Gabriel et al. and Lee et al. disclose the dry etching method (Gabriel et al., Col. 1, Lines 34-38) according to claim 3, wherein the N type polysilicon

Art Unit: 2815

gate electrode (Lee et al., Figs. 3-5 (12)) and the P type polysilicon gate electrode (Lee et al., Figs. 3-5 (14)) are disposed adjacent one another.

Regarding claim 13, Gabriel et al. and Lee et al. disclose the dry etching method of claim 3, wherein the N type polysilicon gate electrode, the P type polysilicon gate electrode, and the non-doped polysilicon body are all etched from a single polysilicon layer (Gabriel et al., Col. 6, Line 62 - Col. 7, Line 9).

Response to Arguments

4. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

Art Unit: 2815

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William Kraig whose telephone number is 571-272-8660. The examiner can normally be reached on Mon-Fri 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Parker can be reached on 571-272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

WFK
2/1/07

EUGENE LEE
PRIMARY EXAMINER

